

U.S. Patent Application Serial No. **10/734,242**
Amendment filed December 22, 2005
Reply to OA dated October 18, 2005

REMARKS

Claims 1-5 are pending.

The support for the amendment to claim 1 is found on p.12, lines 6-15, p.13, lines 5-7, p.14, lines 6-10 and FIG. 1. The applicants respectfully submit that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated **October 18, 2005**.

Claims 1, 3 and 5 are rejected under 35 USC 103 (a) as being unpatentable over Chen in view of Bischel et al. and Han et al. (Office Action, page 2)

Basically all references fail to disclose or even suggest *when* to perform the step of cleaving with a cleaver. The rejection assumes that because the Bischel reference discloses a cleaver, then it logically follows that the claimed invention would be obvious. However, as will be explained below, at least one key point of the claimed invention is is performing the cleaving after the subbing layer and before the surface layer formation, and this is not obvious from the combination of references.

The Office Action notes on p.3, second paragraph that Chen “does not specifically teach using a cleaver for the end face treatment step nor forming a subsequent surface layer.” The Office Action then cites Bischel for teaching the use of a cleaver and states that “An optical fiber would inherently be used for cleaving an optical fiber.” (Office Action p.4, text line 2-3) The Office Action then cites Han for disclosing applying a first layer of nickel and a second layer of gold.

The Office Action then concludes (p.4-5):

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Chen by using a cleaver for treating the end surface as taught by Bischel et al., because cleaving the end surface allows light to be transmitted through the end face of the optical fiber, and also prevents reflection of light back to the emitter. It would have been obvious to one having ordinary skill in the art to further modify the method of Chen by coating additional metal layers to form the surface layer as taught by Han et al., because coating multiple layers assures adhesion of the metal coating to the fiber and assures that the desired physical and chemical characteristics (such as oxidation) are present on the surface of the metallic layer.

This conclusion does not at all address the issue of *cleaving after the subbing layer formation and before the surface layer formation*. The Bischel reference only mentions a cleaver and does not at all mention *when* to properly perform the cleaving step in the entire multi-step process.

The specification mentions that using a cleaver at the wrong step is a problem (p.4, lines 13-21):

Hence, where the end face treatment is carried out using the optical-fiber cleaver, it is difficult to make a notch cut (strike mark or blade mark) necessary for cleavage, **because the bare fiber of the optical fiber stands protected with the metallic coating, so that its rupture cross-section can not be treated to have a end face shape suited for the light input**. There has been such a problem. (Emphasis added)

There is no teaching in Bischel of this problem, therefore the mere mention of a cleaver does make obvious the invention recited in claim 1.

Furthermore the specification mentions specifically that cleaving is related to the thickness of the metal layers applied to the optical fiber. Specifically the specification explains (p.9, lines 4-

24):

In the case when the subbing layer is constituted of the electroless Ni plating layer and the electrolytic Au plating layer, the electroless Ni plating layer may have a thickness set within the range of from 0.01 mm to 1.5 mm. This is because, if it has a thickness of less than 0.01 mm, the layer may be so thin as to bring about a difficulty in the subsequent electrolytic plating, and, if on the other hand **it has a thickness of more than 1.5 mm, a bare-fiber end face which is especially good for the light incidence may be obtained with difficulty when the end face treatment is carried out using the optical-fiber cleaver.** The electrolytic Au plating layer may also have a thickness set within the range of from 0.03 mm to 0.1 mm. This is because, if it has a thickness of less than 0.03 mm, it may be difficult for the layer to cover the electroless Ni plating layer completely, and, if on the other hand **it has a thickness of more than 0.1 mm, a good bare-fiber end face may be obtained with difficulty when the end face treatment is carried out using the optical-fiber cleaver.** (Emphasis added)

None of Chen, Bischel or Han disclose or even suggest that cleaving step is related to the thickness of the metal layer. Without any suggestion at all it is impossible to conclude that a process of forming a sublayer, *followed by* cleaving, *followed by* forming another metal layer is obvious. Simply put, the rejection of the above multi-step process does not logically follow from a reference disclosing a clever in combination with two other references all of which fail to disclose the when to preform the cleaving step and when not to perform the cleaving step.

In addition, claim 1 has been amended to emphasize that the cleaving step comes after the subbing layer formation and before the surface layer formation. This will clarifies the *order* of the claimed steps which is not at all obvious from three references which make no mention at all of such order. Merely disclosing a clever is not enough to make the claimed process obvious, otherwise the mere mention of any instrument would make all process using that instrument obvious.

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Claims 2 and 4 are rejected under 35 USC 103 (a) as being unpatentable over Chen in view of Bischel et al. and Han et al., and further in view of Filas et al. (Office Action, page 2)

This rejection relates to the thicknesses claimed in claims 2 and 3. Specifically, the Office Action mentions that the “difference between the references and the instant claims is that the references do not explicitly teach a gold layer having a thickness of 0.03-0.1 μm nor 0.05 μm to 1.0 μm .”

Therefore the Office Action cites Filas for teaching the thickness of a gold layer within the range of 0.1-1.0 μm .

However, the key issue in this rejection is *performing the cleaving after the subbing layer and before the surface layer formation*. Filas does not add anything to Chen, Bischel and Han with respect to the order of the process and therefore does not make obvious claims 2 and 4 which depend from claim 1.

It is urged that the rejection be reconsidered because that the combination of references fail to make the invention recited in claim 1 obvious. It is respectfully requested that the rejection be overcome.

In view of the aforementioned amendments and accompanying remarks, the claims, as amended, are in condition for allowance, which action, at an early date, is requested.

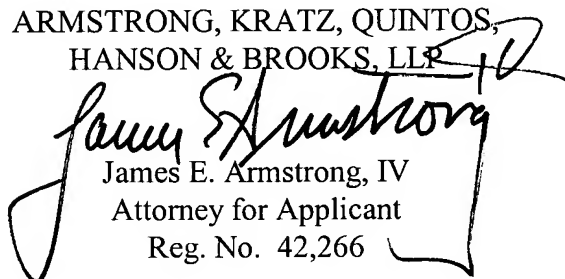
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If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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